YR2050 user manual

Directory

(1) Overview

YR2050 tester is a real four-wire measuring wire and low resistance tester, which can be used to test and calculate the wire and also to measure the resistance. This product is applicable to the rapid calculation of wire length, cross-sectional area and resistivity, as well as the rapid quality judgment of motor, transformer power line, etc. This machine is an ideal electrical and electronic testing machine with exquisite structure and convenient carrying.

(2) Safety instructions

The machine cannot measure electrified devices, and the test interface cannot input AC/DC voltage. The charging port uses MicroUSB charging port and inputs 4.5V-5.5V voltage.

(3) Part names and functions

Button function:

【菜单】key (Power /Set/Cancel)

6. Short Press boot in shutdown state.
7. In normal mode and detection mode, click the [菜单] key to enter the menu list.

8. Under the menu list, click the [菜单] key to enter the selected menu options.
9. In the menu options, click the [菜单] Key to cancel the settings and return to the menu list.
10. In normal mode and detection mode, long press the [菜单] key to enter the shutdown interface, and through the [保存/HOLD] Key and [▲] key to determine whether to determine the need to shut down.

【保存/HOLD】key

8. In the shutdown interface, click [保存/HOLD] to confirm shutdown.
9. In normal mode and detection mode, press the [保存/HOLD] Key for a short time. HOLD will be displayed on the left side of the screen, indicating that the measured value has been locked. Click unlock again.
10. In normal mode and detection mode, short the Kelvin clip correctly, when the measured value has a smaller deviation value (less than 200 words). Long press the [保存/HOLD] key. When the letter U appears in the upper left corner of the screen, the display value is zero. Long press again to cancel. Zero cannot be turned on in the HOLD state.
11. Under the menu list, short press the [保存/HOLD] Key to exit directly to the menu list.
12. In the menu options, click the [保存/HOLD] key to save the settings and return them to the menu list. Click the [保存/HOLD]Key again to save the settings and return to the measurement interface.
13. In parameter settings, click [保存/HOLD] to save the settings and exit the currently selected option.
14. In the detection mode, the selected parameters enter the modification state. Press save again and exit the modification state.

【量程】key

2. Select the current range, and continuous press will switch between each range and automatic range function.

【选择】key

4. In the detection mode, click the [选择] Key to calculate according to the measured resistance value when pressed.
5. In the detection mode, when the parameter enters the modification state, click the [选择] key to change the bit of the parameter to be set.
6. In the menu options, click [选择] to select the parameter, or change the bit to be modified in the parameter. Or directly modify the selected parameters.

【▲】and 【▼】key

1. Flip the menu up and down, or select the parameters to be set.
2. After the selected parameter, you can add or subtract the parameter.

(4) Parameter setting

Click the [菜单] Key in the measurement interface to enter the menu list, switch the selected menu through the [▲] Key and the [▼] Key, and press the [菜单] key to enter the setting after selecting, press the [保存/HOLD] Key to exit the setting and return to the measurement interface.

11. General mode: General Test common mode, the display interface is the measurement interface. Long press [保存/HOLD] Key ZR will be displayed on the left side of the screen, long press again to release.

① The upper part of the left side shows the setting value of the upper and lower limits of the resistance, followed by LO is the lower limit of the resistance, followed by the upper limit of the resistance.

② The upper part of the right side is the result of detection and judgment. When the measured value of the gear is within the range of upper and lower limit, it will show PASS, otherwise it will show NO improvement. The upper and lower limit values are set and opened in item 5 of the menu.

2. Detection mode: used to calculate the parameters of wires.

First line : Real-time resistance measurement value.

Second line : the left is Resistance value used for calculation.the right is Resistivity selectable.

Third line : the left is Sectional area of wire . the right is Wire Length.

fourth line : Parameters to be calculated (Such as Resistivity or Sectional area of wire or Wire Length).

First, use the [▲] and [▼] keys to select a row of calculation results, and press the [保存/HOLD] key to make the calculation results enter the configurable state. Press [▲] and [▼] keys to select the parameters to be calculated. Press the [保存/HOLD] key to save. Press [▲] and [▼] to select the option to input data, and press [保存/HOLD] to make the option enter the configurable state. Click the [选择] key to move the selected digit, and press the [▲] Key and [▼] Key to add or subtract the digit. After the selected unit is selected, the position of the decimal point is modified, press the [保存/HOLD] key to save. Finally, measure the conductor resistance and click the [选择] key to get the calculation result.

3. Backlight setting: backlight parameter setting. Brightness (10%-99%); Trigger (close, operate, Always Bright); Delay (5s -60S).

4. Energy saving setting: Automatic shutdown function setting. Automatic shutdown (on, off);Time delay (5min-60min);Low power consumption (on, off).When entering the low-power mode, the position displaying the measured value displays the "--" symbol. You can exit the low-power mode by pressing any button on the panel.

5. Upper and Lower limit alarm value settings

① press the [菜单] Key in the measurement interface to enter the setting.

② select the parameters to be set by pressing [▲] and [▼].

③ select the parameter to be set by pressing the [选择] button, and press the [选择] button to move the selected bit.

④ After selecting the position to be set, Press [▲] and [▼] to add or subtract the value. After the unit is selected, modify the position of the decimal point.

⑤After setting up, press the [保存/HOLD] key to save the setting value and exit the

parameter setting state.

⑥ Then turn on the comparison function, press the [保存/HOLD] key to save and exit 5 items of the menu, and return to the normal mode interface to test directly. (Note: LO is the lowest value and UP is the highest value. Those in this range are qualified.).

6. Serial port settings: the extension option is not open temporarily, please consult the manufacturer for details.

7. Calibration: calibration function is not open temporarily.

8. Restore calibration: temporarily not open.

9. Contrast setting: the contrast can be set to 0~9. The larger the value, the deeper the display will be.

10. Resistivity setting: There are 8 custom resistivity in the resistivity setting menu, which can be set by users themselves. Press [▲] Key and [▼] Key to select the custom value to be set, and click [选择] key to make it enter the modifiable state. Press the [选择] key to move the selected bit, and press the [▲] Key and [▼] Key to add or subtract the value. After the unit is selected, modify the position of the decimal point, and press the [保存/HOLD] key to save

(5) Precision specifications

Format of precision: ±([measured value]%+ [range]%)

Range	maximum resolution	accuracy	display mode
1Ω	0.01mΩ	0.12%+0.03%	1.19999Ω
10Ω	0.1mΩ	0.08%+0.02%	11.9999Ω
100Ω	1mΩ	0.08%+0.02%	119.999Ω
1KΩ	10mΩ	0.10%+0.03%	1199.99Ω

Temperature Drift 100ppm/℃ within normal service temperature (10℃-40℃)

(6) Maintenance

Host maintenance:

1. Avoid high temperature and humidity environment. Prevent interface and circuit from moisture oxidation.
2. Avoid direct sunlight to the LCD screen for a long time to avoid aging.
3. If not used for a long time, please keep the battery at 50% power (or between 3.7V-3.9V battery voltage) to extend the life.

External test line:

4. Check the on-off condition of each signal line of the test line frequently to avoid the test error caused by the broken line.
5. Avoid high temperature and humid environment. Prevent the interface and probe from moisture oxidation.

(7) General technical indicators

Maximum protection action voltage between any terminals: 20V
Protective fusing current: 0.5A
Display: 120000 words, updated 4 times per second
Temperature: Work: 10 ℃ -40 ℃ , storage:-20 ℃ -60 ℃ temperature coefficient: 0.1 * (specified accuracy)/℃(<10℃ or >40℃)
Battery type: 3.7V 2000mAh 18650
Power consumption: <60mA (when the range is 10Ω and above, and the power supply is 3.7V, the backlight is turned off)
<160mA (1Ω range, when the power supply is 3.7V, the backlight is off)
<10mA (enter low power consumption mode)
0mA (shutdown)

(8) Matters needing attention in the test

1. The machine has been calibrated before shipment, and there is no need to calibrate or reset the machine.
2. After starting up, if in the automatic range AUTO, connect the Test line to test directly.
3. The use of Kelvin plus test wire: when measuring the wire or resistance, the clamp must be in the open state, and there should be no direct contact between the two metal of each clamp, and it should be in good contact with the wire or resistance, otherwise, it cannot be measured stably and accurately.

(9) Summary and classification of common problems

1. Why does the length of the same roll of copper wire change?
A: The same resistivity has a positive temperature coefficient, that is to say, the resistivity will also increase when the temperature rises, which leads to the increase of the overall resistance value. Other parameters remain unchanged, resulting in an increase in the calculated wire length, but these changes are very small compared with the whole.
2. Could you tell me how to adjust YR2050 to zero?There is also a 0.0X mΩ resistance between the two Kelvin clips
A: There is a wiring sequence for the direct short circuit of the Test line, and the clamping sequence is red line, black line, white line and white line. After short circuit, it may not be zero, but a very small value generally does not affect the measurement. When the machine is turned on, there will be internal automatic zero calibration, so the Zero Deviation displayed is basically caused by external factors, and thermocouple phenomenon is common.
3.Can YR2050 measure large single lithium iron phosphate battery?

A: YR2050 is a DC resistance tester, which cannot test active devices.

4. YR2050 calibration interface cannot be entered. Why?

A: Because YR2050 has a resolution of 120,000 words (five and a half), and when calibrating with higher precision, it needs to be calibrated with precise Resistance calibrated by high level meter. YR2050 has high stability, general users do not need to calibrate the instrument, if necessary, please contact the manufacturer.

5. YR2050 serial port interface cannot be entered. Why?

A: YR2050 does not have the function of opening the serial port, so the serial port setting is closed in the menu.

6. How to detect whether the motor is good or bad?

A: The resistance value of each winding of the motor is measured separately, which can provide reference easily through comparison.

7. Can it be used to measure MOS conduction resistance?

A: For NMOS black clip clip the S pole of MOS, the red clip is connected to the D pole of MOS, and there is a 12V positive voltage between G pole and S Pole indirectly.

For PMOS red clip clip the S pole of MOS, the black clip is connected to the D pole of MOS, and there is a 12V negative voltage between G pole and S Pole indirectly.

8. The number changes very fast and cannot be measured accurately.

A: Cause of instability, poor contact between test line and battery, strong interference around or short circuit between test line.

9. Can I measure capacitance?

A: Capacitance cannot be measured, this is a DC tester.

3135 silicone soft wire:

Line number	Wire core	Resistance per meter
30 AWG	0.0754 (15*0.08) mm^2	232.1 mΩ
28 AWG	0.0955 (19*0.08) mm^2	183.2 mΩ
26 AWG	0.15 (30*0.08) mm^2	116.6 mΩ
24 AWG	0.20 (40*0.08) mm^2	87.5 0mΩ
22 AWG	0.30 (60*0.08) mm^2	58.33 mΩ
20 AWG	0.50 (100*0.08) mm^2	35.00 mΩ
18 AWG	0.75 (150*0.08) mm^2	23.33 mΩ
16 AWG	1.266 (252*0.08) mm^2	13.82 mΩ
14 AWG	2.01 (400*0.08) mm^2	8.706 mΩ
12 AWG	3.41 (680*0.08) mm^2	5.132 mΩ
10 AWG	5.27 (1050*0.08) mm^2	3.959 mΩ
8 AWG	8.29 (1650*0.08) mm^2	2.111 mΩ
6 AWG	16.08 (3200*0.08) mm^2	1.088 mΩ
4 AWG	21.61 (4300*0.08) mm^2	0.810 mΩ